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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,444	12/11/2001	Geoffrey Giles Furman	85941.000023	1689

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EXAMINER	
MENGISTU, AMARE	
ART UNIT	**PAPER NUMBER**
2673	4

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/020,444	FURMAN, GEOFFREY GILES	
	Examiner	Art Unit	
	Amare Mengistu	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ***"Interrupt is software -based"*** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show **"input signal 154"** as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction

of the following is required: ***"Interrupt is hardware-based"; "Interrupt is software - based"*** as, claimed in claims 2 and 3.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-5,7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant's Admitted Prior Art [fig.2]** in view of **McDowell et al (5,528,262).**

As to claims 1,7, **Applicants Admitted Prior Art [fig.2]** discloses a method of controlling a display, comprising: (a) connecting a display controller to a CPU (fig.2 (140,142)) and to the display (fig.2 (136)), the CPU having a progressively organized pixel memory (fig.2 (152)) and scanning the pixel memory using the control the scanning (page 6, last paragraph). **Applicants Admitted Prior Art [fig.2]** has failed to teach that the controller capable of providing an interrupt; and (b) scanning the pixel memory using the interrupt

to control the scanning, thus providing scanned data to the display in a color field sequential mode.

However, **McDowell et al** is cited to teach that it is well known for a field sequential color display to have a controller capable of providing an interrupt; and scanning the pixel memory using the interrupt to control the scanning, thus providing scanned data to the display in a color field sequential mode (see, Abstract, col.3, lines 12-35, col.5, lines 9-21, col.6, lines 32-60). It is inherent that the controller does the horizontal blanking/ interrupt.

Therefore, it would have been obvious to one skill in the art at the time of the invention was made to have been motivated to use the blanking method of McDowell **et al** into the system of **Applicants Admitted Prior Art** since this an advantage to a color display that can be configured to perform spatial anti-aliasing of color in the display itself to improve the perceived image quality.

As to claim 4, **Applicants Admitted Prior Art** teaches that the CPU is a microprocessor (fig.2 (142))

As to claims 5 and 12, a digital/analog converter (fig.2 (144)) between the controller (fig.2 (140)) and the display (fig.2 (100)) is taught by **Applicants Admitted Prior Art**.

As to claims 8-11, **Applicants Admitted Prior Art [fig.2]** discloses a method of controlling a display, the method comprising: (a) providing a central processing unit (fig.2 (142));

(b) Connecting a display controller to the central processing unit (fig.2 (140)), (c) connecting the display to the display controller (fig.2 (140), (100));

(d) Connecting a pixel memory to the display controller (fig.2 (150), (140));

(e) Providing in the pixel memory a plurality of memory locations, each of which contains data corresponding to three primary colors (fig.2 (152));

(f) Sorting the data in the memory according to primary color (see, fig.2 (152)).

Applicants Admitted Prior Art [fig.2] has failed to disclose the controller having an interrupt; (g) scanning the data to provide an image of a first primary color on the display; (h) on completion of the first primary color image, using the interrupt to initiate in sequence formation of second and third primary color images, thus forming a multicolored image; and (i) after formation of the multicolored image, using the interrupt to initiate formation of further images.

McDowell et al clearly states that scanning the data to provide an image of a first primary color on the display (fig.2a (216)); (h) on completion of the first primary color image, using the interrupt to initiate in sequence formation of second and third primary color images, thus forming a multicolored image (see, fig.2a (RED, GREEN and BLUE) (216,218)); and (i) after formation of the multicolored image, using the interrupt to initiate formation of further images (see, Abstract; col.3, lines 12-35, col.5, lines 9-21, col.6, lines 32-60).

Therefore, it would have been obvious to one skill in the art at the time of the invention was made to incorporate the color field sequential scanning using blanking method as taught by **McDowell et al** into the system of **Applicants Admitted Prior Art [fig.2]** because this will provide a color display that is better suited to immersive and wide filed applications such as virtual reality and telepresence; the perecieved color of a display object does not leave color afterimage when the viewer moves his or her head or causes the object to quickly move.

In regard to claims 2 and 3. **McDowell et al** disclose a blanking/ an interrupt system during color sequential scanning. McDowell et al did not explicitly detailed as to how the blanking/interrupt is done. However, it would have been obvious to one skill in

the art at the time of the invention was made to have recognize that the blanking/interrupt is performed by the CPU (controller) or it can also be done by a computer program (software).

6. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant's Admitted Prior Art [fig.2]** in view of **McDowell et al (5,528,262) further in view of** Comerfored **(4,592,059).**

7. As to claims 6 and 13, **Applicant's Admitted Prior Art [fig.2]** as modified by f **McDowell et al (5,528,262) teaches a** D/A converter, but has failed to teach that the D/A converter is R2R network. The patent of **Comerfored** is cited to teach that it is conventional to have a D/A converter (fig.1 (30)) between a display (fig.1 (12 LED)) and a controller (fig. 1(28)) and D/A is R2R network (col.6, lines 23-24).

Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to have been motivated to combine the **Comerfored's** D/A converter into the system of Richards because this will supply a digitally programmable current source may supply a bias current for the injection of the laser.

Response to Arguments

8. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amare Mengistu whose telephone number is (703)305-4880. The examiner can normally be reached on M-F,T-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703)305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Amare Mengistu

Primary Examiner

Art Unit 2673

A.M

April 14,2004